Rexercises 4

Research Methodology – Quantitative

Consider the data set DATASW.csv about Case Study 1 (CS1: Usability metrics for a sport watch). Solve the following exercises.

Exercise 4.1 Run a regression analysis using the sum of TT3t1 and TT3t2 as dependent variable. The regression model has two independent variables: (a) the sum of TT1t1 and TT1t2 (b) the sum of TT2t1 and TT2t2. Complete the analysis by providing an appropriate graphical representation. Finally, comment the statistical inference results and the goodness-of-fit performance of the regression model.

Exercise 4.2 Run a regression model with TT3t1 as independent variable and TT3t2 as dependent variable. The regression model should also contain as independent variable the Sat2 variable. Evaluate both the regression models (parallel model and interaction model) in terms of statistical inference as well as goodness-of-fit. Finally provide a graphical representation by depicting the observed data as well as the reconstructed regression lines using the parameters' estimates.

Exercise 4.3 Run a regression model analysis by using TT1t1 as dependent variable and Gender as the only independent variable. Provide an appropriate graphical representation for this analysis and discuss the inferential statistical results. Finally compare the former result with the result obtained by running a t-test analysis (for independent samples: females vs males) on the same TT1t1 variable with homogeneity of variances assumption. What can you say about the two results?

Exercise 4.4 For each of the three tasks evaluate, separately, if a learning effect occurs from time occasion 1 and time occasion 2 for the Time on Task variable (limit the analyses only to those cases were an individual is successful in both time occasions). **Note:** you can evaluate the learning effect using different types of statistical analyses (you can choose the one of your preference).